

## CLAIMS

1. A system for signalling within optical or combined optical/electrical networks  
c h a r a c t e r i z e d i n that one at a first  
5 transmission node executes polarization multiplexing of  
transmitted traffic, and that at one or more intermediate  
nodes is executing one or more of the following processing  
of the transmitted traffic:  
  
demultiplexing of polarization of the received traffic  
10 and/or  
  
multiplexing by polarization and/or time divisional multiplexing of the received traffic, and/or  
  
SOP-alignment of the received traffic.
2. System according to claim 1,  
15 c h a r a c t e r i z e d i n that at least two states  
of polarization are used for signalling.
3. A system according to claim 2,  
c h a r a c t e r i z e d i n that said network is a  
package switched network and that states of polarization  
20 are changed at the beginning of every new package.
4. System according to one of the claims 2 and 3,  
c h a r a c t e r i z e d i n that said states of polarization are changed between header and payload so as to  
separate said header from said payload within the respective  
25 package.
5. System according to claim 1 or 2,  
c h a r a c t e r i z e d i n that the different states  
of polarization are used for separating of QoS classes.

6. System according to claim 5,  
c h a r a c t e r i z e d i n that the QoS classes are  
given by the first transmission node controlling the state  
of polarization.
- 5 7. System according to claim 1 or 2,  
c h a r a c t e r i z e d i n that the derivative of  
said state of polarization is used for separation of one or  
a number of QoS classes.
8. System according to the claims 1 - 4,  
10 c h a r a c t e r i z e d i n that a polarization beam  
splitter is used where the effect at the outputs of the po-  
larization beam splitter are monitored to detect the inter-  
mediate states by intermediate states which will produce  
output on both outputs of the polarization beam splitter,  
15 wherein the state of polarization is defined from distribu-  
tion of effect between said outputs and the mechanism for  
monitoring combined with a switch to separate in a physical  
manner.
9. System according to one of the claims 1 - 4,  
20 c h a r a c t e r i z e d i n that a polarization beam  
splitter is used to separate between said states of polari-  
zation.
10. System according to claim 1,  
c h a r a c t e r i z e d i n that the first transmis-  
25 sion node and/or the other intermediate nodes comprise a  
OPS module attached to a S-WRON node.
11. System according to claim 11,  
c h a r a c t e r i z e d i n that said network further  
comprises switches where packages of a first quality class  
30 are forwarded optically, and packages of a second quality  
class are forwarded electronic.

12. System according to claim 11,  
c h a r a c t e r i z e d i n that the first quality  
class is of the type GS, and the second quality class is of  
the type BE.

5 13. System according to claim 11,  
c h a r a c t e r i z e d i n that the electronic  
switching matrix is of a type known from Prior Art, while  
the optical switching matrix is a wavelength router.

14. System according to claim 13,  
10 c h a r a c t e r i z e d i n that a number of wave-  
lengths is reserved to the electronic switch, and a number  
of wavelengths is reserved for the optical switch.

15. Method for handling of packages within optical package  
switching network,  
15 c h a r a c t e r i z e d i n that one at a first  
transmission node executes polarization multiplexing of  
transmitted traffic, and that at one or more intermediate  
nodes is executing one or more of the following processing  
of the transmitted traffic:

20 demultiplexing of polarization of the received traffic  
and/or

multiplexing by polarization and/or time divisional multi-  
plexing of the received traffic, and/or

SOP-alignment of the received traffic.

25 16. Method according to claim 15,  
c h a r a c t e r i z e d i n that packages are sepa-  
rated in a first and a second class, wherein the packages  
in the first class are following e predefined route in a  
network, and that packages in the second class is switched  
30 by a package switch module.

17. Method according to claim 16,  
c h a r a c t e r i z e d i n that at a receiving node  
packages will be segregated into two classes, by way of  
setting switches based on header information from said  
5 packages.

18. Method according to claim 16,  
c h a r a c t e r i z e d i n that at a receiving node  
packages will be segregated into two classes, based on or-  
thogonal states of polarization which represent the two  
10 said classes.

19. Method according to claim 15 or 16,  
c h a r a c t e r i z e d i n that when a first package  
with a guaranteed quality arrives at a switch a controlling  
device will register that the first package is present at  
15 the input before the first package is delayed in a FDL in a  
first pre-determined period of time, further an output is  
reserved where the first package is supposed to be trans-  
mitted.

20. Method according to claim 19,  
20 c h a r a c t e r i z e d i n that the first predeter-  
mined period of time has a period of time equal or longer  
than the period for a second package with a lower QoS level  
than the first package, and where the other package has a  
max. allowed size.

25 21. Method according to claim 15,  
c h a r a c t e r i z e d i n that statistically multi-  
plexed BE-packages are interweaved with GS-packages where  
the GS-packages follow a predetermined wavelength path.

22. Method according to claim 15,  
30 c h a r a c t e r i z e d i n that said network com-  
prises switches wherein packages of a first quality class  
are forwarded optically and packages of a second quality  
class are forwarded electronically.

23. Method according to claim 22,  
c h a r a c t e r i z e d i n that the electronic  
switching matrix is of well known type, while the optical  
switching matrix is a wavelength router, and on the input  
s of said optical switch the input signals will split depend-  
ent of the polarization of the optical signal.